

# SINC - LINK

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## SINC-LINK

From the Editor

Welcome to Sinc Link from your new newsletter editor. I hope to keep you informed and entertained with facts and fiction from Sinclair and now Cambridge computers. Since this is a Sinclair club we should follow our knight and the his computers wherever they come from. His latest, named the Z88 what else, is a re-think of the Tandy model 100. It's sold in US by Sharp's for \$399(us). I'm very tempted by everything I read about it to spring the Visa for one.

I need articles to print! Come on now, everyone can send something that they want to share with the group. Anything - ransom notes for kidnapped Spectrums, uses for ZX80's other than foot warmers, I know you use them for something.

### Disk Droppings

by Greg Lloyd

In my last column I went on at great length about my new QL. Now I'll look at the Psion Stringy Floppy Quartet. Porcupine Quill, Abacurse, Sour cream and Archives, and Easel rider are the members of the quartet. To the un-QL'd among you these are the Word Processor, Spreadsheet, Database and Business Graphics progs that come bundled with the machine. I'll look at Quill as I have had the most indecent exposure to it.

Quill is as slow and steady as the rodent barb it is named after. For my uses, it has all the features that a home word worker needs to do the job. I have had some experience with other WP programs and find that speed isn't everything. Help on demand and friendly prompting for every command are the key points Quill has in it's favour. I read the manual once and have found that the Help files are enough to guide me through any mess I get into. Although I don't have it, a memory expansion board will allow the creation of really big (100 page or more) documents. The limit is storage medium here obviously. A disk or microdrive scratchpad is used, the mysterious def\_tap file, to shuttle words in and out of the ram used to hold your document. If your doc is bigger than your memory capacity that's where the prog puts it temporarily till you save the file. In an experiment, I made a document that was 42 pages (134112 bytes) long before my system - 128K QL & Cusana interface with 2-360K discs - gave me a not enough memory error. At this point, I was given a warning, which I ignored (hey, it's a warning not a lockup!) and the program then prompted me to abandon Quill and face the wrath of Superbasic. I was dumped to Superbasic, a place I like to avoid at all costs, no more menus or help files. A check of my disk showed a file def\_tap recently created and 135823 bytes long. Being a brave soul, I renamed the file test\_doc and restarted Quill. I then loaded test\_doc, alias def\_tap and got most of my 42 page document back. I saved it and now can testify that without extra memory 42 pages is the place to stop. Brian Taylor a QL'er with disk and 640K said he stopped the fun at over 100 pages with no warnings in sight. Incidentally, I am using version 2.1 other versions may act differently. A word of advice here save early and save often. There's no substitute for backups.

I like the possibilities available with extra memory. One of them is a Ram-disk. I recently got QFlash, a ram disk and toolkit utility on micro-drive cartridge (\$ 26 US.) from Sharps. Great stuff! If you have this program and some extra memory you can speed the QL to rival Sir Clive's Black Turbo Porche 911 (that's the one I paid for by buying a ZX-81). The ram-disk is a

partitioned area of memory, that to QDOS is a storage device, to you it's fast loading and saving. It can allow you to load screen file from ram1\_ in 0.088 of a second (QFlash times). That with a floppy or micro-drive. It's too bad Uncle Cliv never gave us the 512K wafer drive.

In actual use you would load your ram disk software on st. 1p. Next you would copy the files you want into the ram disk. No fasten your seat belt and wait no longer for loading and saving. When you are all done, you can SBACKUP (selective backup) all the files on the ram-disk that you have changed.

To use Quill with a ram-disk you run the CONFIG\_BAS program and set your Help and Data files to RAM1\_ and change your Quill load program.

Here's a sample of my Quill loader:

```
1 CLS:INPUT "Date and Time (mddhhmm) ";z$
2 IF z$="" THEN GOTO 4
3 SDATE 1987,z$(1 TO 2),z$(3 TO 4),z$(5 TO 6),z$(7 TO 8),0
4 PRINT DATE$
5 INPUT "ok ? (y/n)";z$: IF z$="n" THEN RUN
6 COPY FLP1_QLWP_HOB TO RAM1_QLWP_HOB
7 REMark put help on ram-disk
8 CLEAR
9 CLOSE #1:CLOSE #2:WINDOW #0,400,20,35,215
10 EXEC_W FLP1_QLWP
11 SBACKUP RAM1_ TO FLP2_
12 OPEN #1,SCR:OPEN #2,SCR
```

Lines 1 to 5 set the date on the QL.

Line 6 copies help to ram1\_.

Line 9 and 10 setup and load Quill.

Line 11 copies the files created to flp2\_.

Line 12 leaves you in a normal state when you exit Quill to Superbasic.

I must add here that I have ordered a ram expansion from Matthew Zenkar of Rochester NY. He is producing the MZ512K expansion for the QL. It features no-wait state ram design and a full thru port for complete periferal compatibility. There is a low chip count and little power drain. In his words "I think I have done what I set out to do with the MZ512K; that is, design the best available board with the best technology for the lowest retail price." Watch for a review here soon of the first production unit available. Matthew has sent a proto to QL World for a full review. To order see the November Computer Shopper Sinclair QL classified adds or write to Matthew Zenkar at PO Box 12534 Rochester NY 14612-0534. Go ahead, make his day, expand your memory.128287

SINC-BITS & THE QL  
WAYFARER WILL RETURN  
NEXT ISSUE !



COPIED FROM 'QUANTA' NEWSLETTER VOL 1, NO. 5 P. 17/18.

# ARCHIVE FIND-SEARCH- SELECT

'FIND' WILL FIND ANY COMBINATION YOU TYPE IN, IRRESPECTIVE OF CASE, BUT YOU MUST REMEMBER TO 'DISPLAY' IT ( LOOKING FOR AN OCCURRENCE OF 'MARK' I FOUND 'DENMARK' ). BUT IT HAS THEN ONLY FOUND ONE FILE. THERE MAY BE MORE, SO INVITE IT TO 'CONTINUE'.

'SEARCH' REQUIRES THE ENTRY TO BE IN EXACTLY THE SAME FORM AS IT IS IN THE FILE . AND AGAIN ONLY FINDS ONE RECORD, SO 'CONTINUE' TO SEE IF THERE ARE ANY MORE.

'SELECT' ALSO REQUIRES THE EXACT, CORRECT. ENTRY, BUT ITS ACTION IS TOTALLY DIFFERENT, EFFECTIVELY IT 'CULLS' THE FILE SO THAT AFTER YOUR 'SEARCH' THE FILE ONLY CONTAINS THOSE RECORDS WHICH SATISFIED YOUR REQUIREMENTS. IF YOU MAKE A MISTAKE IN YOUR ENTRY 'ARCHIVE' WILL FIND NO CARD IN YOUR FILING CABINET THAT YOU WANT AND WILL THROW EVERY CARD OUT OF THE WINDOW, SO THAT YOU ARE LEFT WITH NOTHING.

FURTHER 'FIND', 'SEARCH' OR 'SELECT' CAN FIND NOTHING. IF YOU BECOME AS CONFUSED AS I DID, USE 'PRINT COUNT()' WHICH TELLS YOU THE NUMBER OF RECORDS STILL AVAILABLE TO YOU. IF THE ANSWER IS 0, THEN YOU ARE LOOKING AT NOTHING! 'RESET' IS YOUR SAVIOUR.

'CONTINUE' IS NOT APPLICABLE AFTER 'SELECT' . YOUR REFINED FILE CONTAINS ALL THE RECORDS YOU REQUIRE, SO GO THROUGH THEM IN TURN USING 'NEXT\_BACK OR 'LAST'.

BUT I AM PROBABLY TEACHING GRANDMOTHERS ABOUT EGGS.

ANON

/X THE WRITER OF THIS ARTICLE DID NOT WANT HIS NAME PUBLISHED, AS HE IS A NEW COMER TO COMPUTERS AND THOUGHT THE ARTICLE WOULD 'ADVERTISE HIS FOOLISHNESS', TO QUOTE FROM HIS LETTER. I WISH MORE MEMBERS WOULD 'ADVERTISE THEIR FOOLISHNESS' IN THIS WAY AS ARTICLES LIKE THIS ARE WHAT NEWSLETTERS SUCH AS 'QUANTA' ARE ALL ABOUT, AND ARE PROBABLY OF MORE INTEREST AND ASSISTANCE TO THE MAJORITY OF MEMBERS THAN THE ESOTERIC STUFF THAT I AND SOME OF THE MORE EXPERIENCED MEMBERS TEND TO WRITE.X/

THE ABOVE ARTICLE WAS TYPED INTO THE COMPUTER AS YOU WOULD ENTER A PROGRAM AND THEN SENT TO THE PRINTER.

IN ORDER TO DO THIS, IT IS NECESSARY TO 1) OPEN A CHANNEL TO THE PRINTER IE, 'OPEN #3,SER1' AND PRESS ENTER (THE APOSTROPHES ARE TO INDICATE WHAT IS TO BE ENTERED, THEY ARE NOT REQUIRED AS PART OF THE PROGRAM LINE ). THE COMMA(,) BETWEEN #3 AND SER1 IS IMPORTANT, AS IT SEPARATES THE TWO INSTRUCTIONS. I ENTERED THE LINE DIRECTLY HOWEVER, I COULD HAVE GIVEN IT A LINE NUMBER AND KEPT IT IN THE PROGRAM.

2) HAVING OPENED A CHANNEL TO THE PRINTER, WHICH IS, IN THIS INSTANCE, CONNECTED TO SERIAL PORT NUMBER ONE, EACH 'PRINT' STATEMENT MUST ALSO CONTAIN THE CHANNEL NUMBER, IE 'PRINT #3,' FOLLOWED BY YOUR STRING OR NUMERIC EXPRESSION.

IT TOOK QUITE A WHILE TO FIND THIS METHOD OF TALKING DIRECTLY TO THE PRINTER AND I OFFER IT ,HOPING IT WILL SAVE SOME ONE ELSE THE SEARCH.

ON THE OTHER HAND I WOULD NOT RECOMMEND THIS METHOD WHEN WRITING AN ARTICLE. AS CAN BE SEEN THE PRINTER DID NOT HANDLE THE LINE ENDINGS VERY WELL. OR SHOULD WE SAY THE INITIATOR DOESN'T KNOW HIS PRINTER VERY WELL. IN ANY CASE USING A WORD PROCESSOR WOULD BE SIMPLER AND SAVE THE DIRECT APPROACH FOR TAKING NOTES, THAT ARE TO BE USED LATER.

W K (BILL) LAWSON

**TIMEX REPAIRS**  
G. Chambers

With TIMEX no longer repairing the TS2068 and other Timex computers it is appropriate to look around to see who else might fill the gap. I wrote to Dan Elliott about this, having heard that he was offering a repair service for Timex computers.

In return I received a repair price list which is shown here, plus a short note which follows:

"Dear George,

Typical in-house turn-around times are 2-3 weeks, depending on parts availability and the nature of the problem. Currently, I do not have any spare SCLD chips or ROMs, however I have contacted Timex Portugal and am trying to arrange a purchase of parts for TS-2068 and TS-1500 on a continuing basis. I now have 3 computers set aside waiting for the SCLD chips to arrive. My experience with the TS-2068 so far suggests that one out of five computers serviced will require the SCLD.

"I don't offer any warranties, expressed or implied, however should a customer feel that I didn't do a good job, I will try my best to make it right.

"As far as my credentials are concerned, I have more than 15 years experience trouble-shooting digital circuitry. I work full-time for a manufacturer of "mainframe types", doing anything from assembly, test/debug to troubleshooting P.C. boards returned from the field. "PROMISE LAND ELECTRONICS" is my sideline business that I run evenings and weekends.

Hope this helps, Dan."

The address is:

DAN ELLIOTT  
Rt 1, Box 117  
Cabool, MO 65689  
U.S.A.

We have no information on how Dan's performance stacks up. However it sounds promising, and we would welcome hearing from members who have tried this repair service, so that we can report further.

\*\*\*\*\*

**HELP WANTED**

**HELP WANTED**

Do you have any POKES, hints, maps, or tips for hacking or playing SPECTRUM arcade games. I am trying to gather a file of all the information that has been found on getting into the games. I will take info on any game, old or new. If you have a game that you just can't get very far on, I may be able to help. For example, I can get you to any room of MANIC MINER.

I would like to provide this as a service for the club, but I will need input from those who get magazines like CRASH and POPULAR COMPUTING WEEKLY.

I also gather and distribute information on adventure games.

If you can help me, or I can help you, please write.

Douglas Jeffery  
Larch Rd., R.R. #1,  
TELKWA, B.C. V0J 2X0

**ON SMALL COMPUTERS**

They are small, not very extravagant, but we still appreciate them.

When they were first introduced into the marketplace, the tiny ZX80 and ZX81 caused an uproar by proving that a computer could be sold at a price that was affordable even by the common-man. With it's child-sized keyboard and flickering screen, the ZX80 proved itself to be the ideal computer for people taking up the hobby of computing for the first time. It was non-intimidating in it's nature, simple to program, and even had the odd character trait of blinking each time an order was issued to it.

The ZX81 came after. It didn't blink as much but was still almost as un-intimidating.

Owners of these little machines soon found that they were running longer and longer programs and even got to the heart of the operating system. Had they tried that with a bigger machine, they might have been swept away.

But, as it was, they lived to type another day.

And type they did, sometimes late into the night.

And when morning came they found that they had done it, they had perfected their program, and all within the allotted memory space.

And the program ran perfectly, flawlessly.

They had tamed their machine.

This is what computing is all about, demonstrating that learning can be fun. By giving the people the opportunity to experience victory (or at least the illusion of it) over their machines, small computers have contributed a great deal to the initiation of people of all ages to the hobby of micro-computing.

By: Edward Abisdriis  
Toronto Chapter, T/S Users Club



## LARKEN/TS2068 AUTOSTART MENU

by G.F. Chambers

The listing "DISK MENU", written by Bob Mitchell, will be found useful when used with the AUTOSTART feature of the LARKEN system. With minor modifications it can be used with either Spectrum or TS2068 program disks.

Lets look particularly at the make-up of LINE 3:

LINE 3 is used to SAVE the program to disk. The BORDER, PAPER, and INK controls are to provide for a darkened screen during the loading process. LINE 3 also clears RAMtop down to just above the program, to minimize the number of tracks used by the AUTOSTART feature. Although the listing shows a figure of 25500, you should alter this to suit your particular application. For example, if your system (LKDOS) saves 1960 bytes per track a suitable number would be 26400 for a Spectrum menu, and 30000 for a TS2068 menu. The "autostart" program would then occupy 2 disk tracks if the menu was being used in the TS2068 Spectrum mode and 4 tracks if used in the normal TS2068 mode.

For a system which saves 5120 bytes to a track (i.e. DSK400) figures of 27600 and 32000 might be appropriate (using 1 and 2 tracks respectively).

If your "autostart" program is too long for these RAMtop figures of course you can increase them.

RANDOMIZE USR 102 initiates the "autostart" SAVE. After entering GOTO 3 and hearing the melody sequence you press the "D" key to complete the SAVE sequence.

The balance of the program is pretty straight-forward and will provide a very attractive menu screen; one which you can easily customise to suit your program loading information.

```
*****
1 REM          DISK MENU
2 GO TO 4
3 CLEAR 25500: BORDER 0: PAPER 0:
INK 0: CLS : RANDOMIZE USR 102
4 PRINT USR 100: OPEN #4,"dd"
5 BORDER 1: INK 7: PAPER 0: CLS
6 PRINT AT 1,2; PAPER 2;"          LA
KEN DISK MENU          "
8 POKE 23658,8: LET x=8
9 RESTORE 100
10 FOR n=1 TO x
20 READ a$: PRINT "          ";CHR$ (n+64
;" " " "a$
25 PRINT
30 NEXT n
34 INK 4
35 PLOT INK 4;0,0: DRAW 255,0: DR
W 0,175: DRAW 255,0: DRAW 0,175:
PLOT 1,1: DRAW 253,0: DRAW 0,173:
DRAW 253,0: DRAW 0,173: INK 7
38 PLOT 9,20: DRAW 237,0: DRAW 0,1
5: DRAW 237,0: DRAW 0,135
50 PRINT AT 20,1; PAPER 2;"
;" FLASH 1;"Press A to ";CHR$ (x+64
;" only"; FLASH 0;"
```

```
70 LET n$=INKEY$
80 IF n$="A" OR n$=CHR$ (x+64) THE
N GO TO 70
85 BORDER 0: PAPER 0: INK 7: CLS
90 GO TO (CODE n$=64)*200
100 DATA "Program Name ","Next prog
ram name ","and so on.... "," "
" " " " "
160 GO TO 1
200 PRINT #4: LOAD "NMI:S1.CM.C1"CO
DE
400 PRINT #4: LOAD "Progrm.B1"
600 PRINT AT 10,1;"Press any key to
start"
610 PRINT #4: LOAD "Progrm.B1"
800 PRINT AT 10,0;"Press any key to
start"
810 PRINT #4: LOAD "Progrm.C1"CODE
1000 PRINT #4: LOAD "Progrm.C1"CODE
1010 RANDOMIZE USR 54016
1020 GO TO 1
1200 PRINT AT 10,0;"Press key A, B,
C, or D to start"
1210 PRINT #4: LOAD "NMI:S1.C1"CODE
1400 PRINT #4: LOAD ".C1"CODE
1600 PRINT AT 10,0;"Press ENTER key
to start"
1610 PRINT #4: LOAD ".C1"CODE
```

CANADIAN SOFTWARE  
AT AMERICAN PRICES!

```
*****
META MEDIA PRODUCTIONS, 726 WEST 17TH, VANCOUVER, BRITISH COLUMBIA, CANADA, V5Z 1T9
META MEDIA PRODUCTIONS Announces for the GL
* FRACTAL- Mathematically based Graphics generator modelled after Mandelzoon
* - Floating point & Fixed point calculation. Fixed point is 10X faster!!
* - Three different functions included: Mandelzoon, Peanozoon & Circle*2
* - Optional screen compression, Zoom, Recolour, Flip, Dump graphics screens
* ROMON - Epron based Monitor with many features: User defined windows, 3 default
* - screens. Disassemble to any channel. List all Functions & Procedures with
* - addresses. Trace & Disassemble mode. List all channels open, with device
* - drivers. Complete Job Control. 4 Breakpoints, 1 Sticky Breakpoint.
* - Features 24 primary commands. Supplied on an epron card for the ROM port.
* G_LINK- A complete telecommunications package for the GL. Features Xmodem, ASCII
* - file transfer. Hayes, Avatez, compatible. Integral editor for document
* - creation; allows you to edit the capture buffer; makes it easy to upload
* - downloaded info; simply mark the block & save or ASCII transfer it. Signon
* - messages, AutoDial, Redial, Edit Phone List, signons, default devices.
* - 300,1200 baud operation. Comes with Unsqueeze, Delibrating utilities.
* Bottom lines: FRACTAL-On adv or disk(specify tpi) for US$19.95 + $2.00 shipping
* ROMON -Supplied on a plug in ROM card for US$34.95 + $2.00 shipping
* G_LINK -On adv or disk(specify tpi) for US$19.95 + $2.00 shipping
* META MEDIA PRODUCTIONS, 726 WEST 17TH, VANCOUVER, BRITISH COLUMBIA, CANADA, V5Z 1T9
*****
```

## BOB'S NOTEBOOK

PEEKING AND POKING ABOUT

One of the fun things about using the TS2068 is the ability to PEEK and POKE about in amongst the machine code and particularly when using the BASIC compiler "Timachine".

Recently, I had compiled (for the nth time) the Indexer program which I use to keep track of all the programs on my disks. In the process I had decided to do all the input/output routines in a loader program rather than inside the code. This would increase the flexibility and usefulness of the program which is limited to 1000 records. Now it can be used ad infinitum no matter how many programs I end up with simply by breaking the listings into smaller parts. So I ended up with a file of current records and another file of what I choose to call "archives". Then I wanted to keep a listing sorted by names and another by disk in each of the two parts.

My SAVES then became:

```
indexn.CM (current by name)
indexd.CM (current by disk)
indexr.CM (archives by name)
indexk.CM (archives by disk)
index0.CM (no data—ready for new file)
```

In my i/o loader I found that I needed to know which file I had in situ at any time: I needed a current status of file and sort type. Well I could have put that into the BASIC before I compiled it but being BASICally lazy, I chose to try to put the information in the loader and so avoid recompiling.

One thing I usually do when I compile a program is to make a copy of the runtime and variable locations by using REM ! LIST. I had done this with "Index" and examining this and my hardcopy of the BASIC program, I located the variable that held the sort type value, in this case "D" for disk and "N" for name. The variable was V\$ located at 49333 in the compiled code. Now the string length was shown as 2 but there were four bytes set aside, the first two to hold the string length. So the value I wanted was at 49335. I could, by PEEKING this address find which sort was in effect at SAVE time and, in fact, I could POKE in a different value if I wanted to. So all I had to do in the loader was tell it to print "name" if PEEK 49335 was 110 (code for "n") or "disk" if it was 100 (code for "d"). It will print "nil" if the value was 32 (code for a space). See line 605 in the extract of my loader, below. Earlier in the program I had LET v1=PEEK 49335.

But I wanted to show the program name on the loader menu and nowhere in the Indexer was the name already in storage. By a stroke of good luck (and not good management) I had some spare space in y\$ which should have been set to a length of 6 but which I had overlooked in the REM ! LEN \$ line and which was now 255 bytes long (by default). Oh well! Dark clouds and silver linings and all that. Y\$ started at 49371 so the first 8 bytes were used for its true function: two bytes for the string length and six for the date when the index file was SAVED. So, from 49380 on was free for me to use as I wished.

In the loader, I entered lines which prompted me for a file name each time I used SAVE and LOAD. That name was POKED into the nine bytes starting at 49380. So now that program name was SAVED inside the compiled code and later could be LOADED and displayed in the loader program. See line 560 for the SAVE (encode) and line 580 for the LOAD (decode) sub-routines.

Here is a sample of what the loader menu looks like with some explanations at the right:

Index I/O Routines	
1. save	:enter the file name
2. initialize	:to start a new file
3. load	:enter the file name
4. stop	:end a session
5. restart	:return to file in situ
Current Status	
3 indexn.CM	:3=loaded + prog name
Sorted by name	:sort type

Here is a sample of the Status when SAVING:

Current Status	
5 indexn.CM	:5=restart + prog name
SAVE OPTION	:enter prog name to SAVE
indexn.CM	:this prog being SAVED

This shows that you can SAVE a file under a new name if you choose, but lets you keep track of what you have LOADED so that you do not SAVE it under a wrong name accidentally.

```
550>REM ***status***
560 FOR k=1 TO 9: POKE 49379+k, CODE 1$(k): NEXT k: RETURN
580 FOR k=1 TO 9: LET 1$(k)=CHR$ PEEK (49379+k): NEXT k
: RETURN
600 GO SUB 580
602 PRINT AT 10,0; INK 5;"Current Status" INVERSE 1;d$
: INVERSE 0; " ";1$;TAB 30
605 PRINT AT 12,0; INK 6;"Sorted by "; INVERSE 1;("name"
AND v1=110)+("disk" AND v1=100)+("nil " AND v1=32); I
NVERSE 0;TAB 30
610 RETURN
```



# DIGITAL IMAGIZING

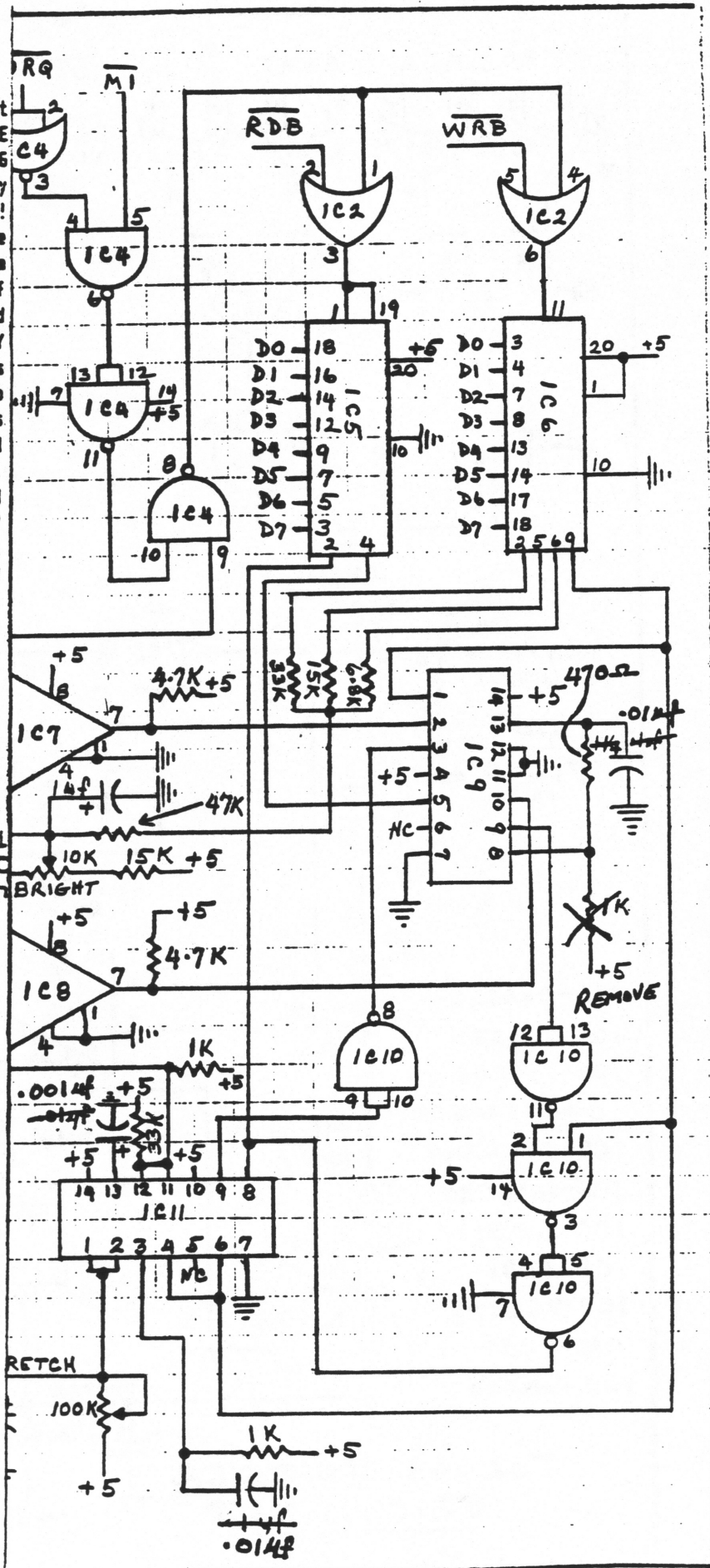
PART II by ERIC MICHAUD

Before we get into Eric's project, I want to say that this DOES work! I built one and it works great! BUT! BEFORE YOU BUILD THIS OR IF YOU ALREADY HAVE AND ARE HAVING TROUBLE, READ THIS FIRST!!! First, There was a discrepancy in the schematic so the one in the last RANTOP was WRONG! The CORRECT one is in this issue! The parts in question are the 3 caps that are under 1uf. Also remove the resistor from pin 8 (74LS74) to 5V. The 1K resistor between pins 13 & 8 of the 74LS74 should be changed to a 470 ohm. I have also found that using 10 turn pots for the BRIGHT and SYNC are VERY helpful! The sync adjust even with a 10 turn pot is less than 3/4 of a turn. Using a single turn, it's VERY hard to set the sync! Bright is not as bad but the 10 turn pot makes it MUCH easier to set the desired contrast and you will find that you need to change this with almost every new picture. I also found that shielding the analog section (LM-311s and associated parts) will help a bit. Also note that the "SYNC" option in Eric's software is only a guide and you must adjust it while scanning a frame for best results. I found that the sync DOES change a bit from a color picture to a B&W and from one video source to another. I built mine on a ZEBRA PROTO BOARD. I will demo it at a later meeting. All the screens were done with my board and my NEC DX-2000U VCR. The DX-2000 has a DIGITAL stop action which digitizes a frame from the tape or a live broadcast. If you are in the market for a VCR you should consider one that has a digital still since it produces a completely jitter free still at all speeds. Now, on to ERIC MICHAUD'S second article!

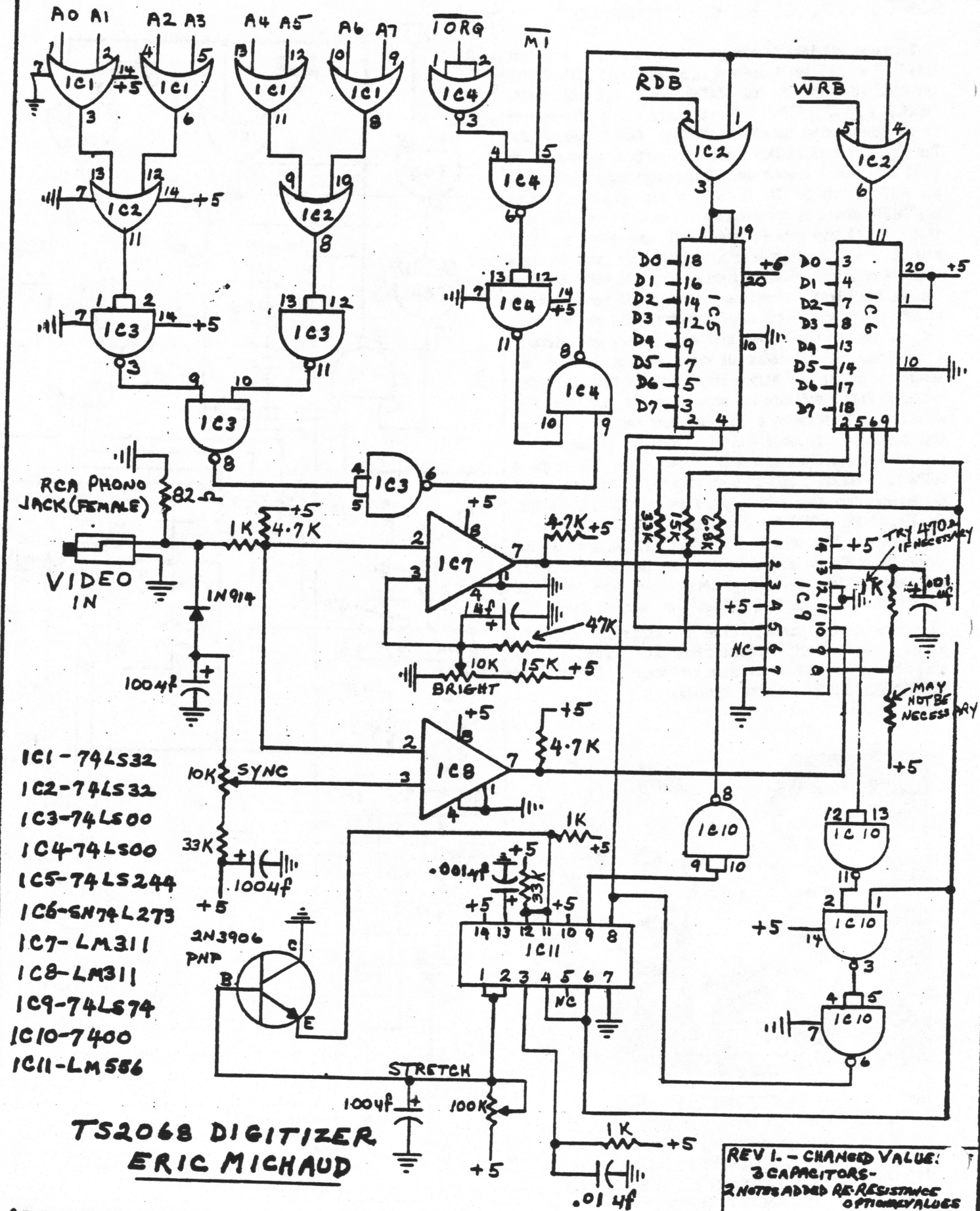
Please note that the original of this article first appeared in SYNC LINK which is the newsletter from the TORONTO I/S users group.



Here is a DIGITIZED screen from a tape that TOBY RADLOFF gave me at the last meeting. The man on the left is Cleveland's HAVEY PEKAR, The writer of the comic book: AMERICAN SPENDER.



# SINC-LINK



TS2068 DIGITIZER  
ERIC MICHAUD

REDRAWN BY GFC 87 01 03



TS 2068 COMPUTERTAPE RECORDS

Here is everything you ever wanted to know about saving to tape but didn't know where to ask. Except for minor differences, like speed, much of it applies to the microdrive and to some disk files.

One important function is not immediately evident; the ability to SAVE code from one location to another.

INPUT MONITORING

For all tape playback operations, a message is displayed on the screen every time a leader is read. This happens during the gap between the leader and the record.

If the leader matches the data type and name specified, the record is read and acted upon. If not, the message remains and reading continues. Messages accumulate in a list until a match is found or no more data is left to read.

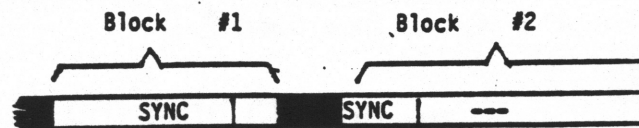
LOAD "bFWzVj" makes an index for a tape that has no program record named bFWzVj.

TAPE HEADER FORMATS

<u>BYTES</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
1	A11	Header identifier (value = 0)
2	A11	Record type (value 0-3)
3-12	A11	Record name
13-14	0	Length of program and variables (E LINE - PROG)
	1,2	Length field from data structure
	3	Specified length
15,16	0	Autostart line number, or 0080h (LSB/MSB)
	1,2	Array I.D. Code
	3	Specified address
17,18	0	Length of program (VARS - PROG)
	1-3	N/A (value = 0)
19	A11	Checksum (XOR bytes)

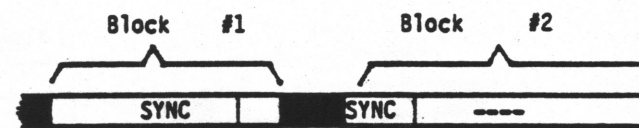
RECORD TYPES

0	Program and variables
1	Numeric array
2	String array
3	Binary code

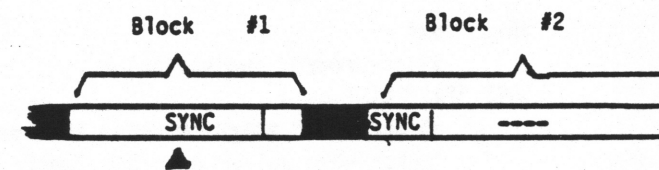


The tape recording consists of two blocks of data separated by a blank gap. (.835 sec.)

Each block begins with synchronizing cycles. These cycles are used by the 2068 to compensate for variation in tape speed from one recorder to another or due to other causes.



Gap, and optional audio.

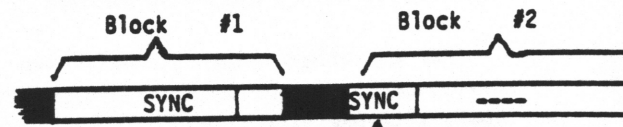


4032 synchronizing cycles (five seconds)



1.24 msec.

Frequency = 806.5 Hz

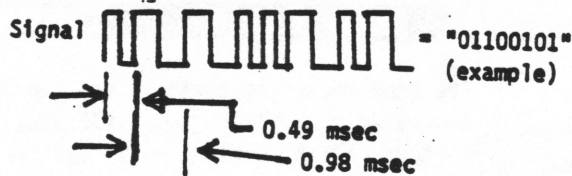
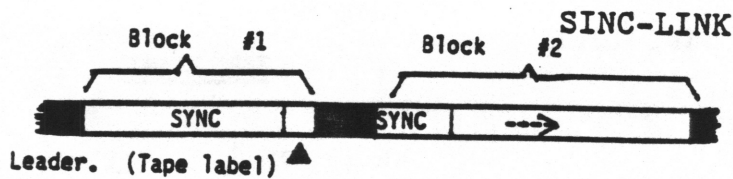


1612 synchronizing cycles. (two seconds)

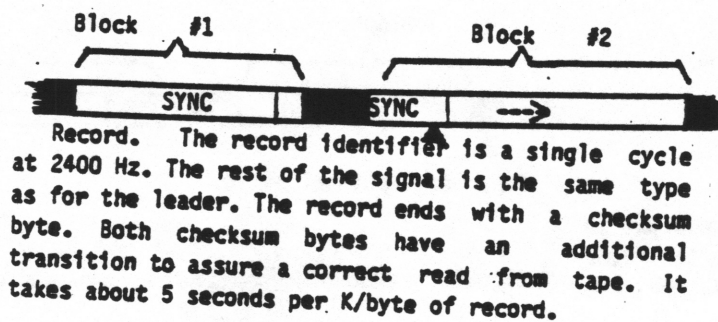


1.24 msec

Frequency = 806.5 Hz



Frequency = 2040 Hz for a "0"  
1020 Hz for a "1"



#### SAVE INSTRUCTIONS

**SAVE "fox"**  
Saves program and variables.

**SAVE "fox" LINE auto**  
As above but starts running from program line "auto" when reloaded. (see leader format)

**SAVE "fox" DATA v ( )**  
Saves numeric array v

**SAVE "fox" DATA s\$ ( )**  
Saves string array s\$

**SAVE "fox" CODE location, bytes.**  
Saves bytes of binary data, starting at location.

**SAVE "fox" STRING\$**  
(equivalent to:  
**SAVE "fox" CODE 16384,6912)**  
Saves screen.  
(primary display file)

When **SAVEing**, the record name must be from 1 to 10 characters. It cannot be omitted.

For all other commands, only the first record having matching name and data type will be acted upon, with one exception.

If the record name is specified as the null string "", the first encountered record of matching data type, regardless of name, will be acted upon. This option will be assumed in subsequent examples, but not shown.

Note that the same record name can be reused once for each data type without interference.

#### VERIFY INSTRUCTIONS

**VERIFY "fox"**  
Verifies program and variables.

**VERIFY "fox" DATA v ( )**  
Verifies numeric array v.

**VERIFY "fox" DATA s\$**  
Verifies string array s\$

**VERIFY "fox" CODE location, data**  
Verifies bytes of binary data, starting at location.

**VERIFY "fox" CODE 16384,42288**  
Verifies as much of **SCREEN\$** as possible.

The computer alters the lower 2 lines for reports. Because of the way **D\_FILE** is organized, these bytes are intermixed with those for the bottom 8 lines. This is incomplete but quite effective.

#### LOAD INSTRUCTIONS

**LOAD "fox"**  
Loads new program and variables from tape, over any that were already present.

**LOAD "fox" DATA v ( )**  
Loads numeric array v

**LOAD "fox" CODE location, bytes**  
Loads bytes of binary data, starting at location

**LOAD "fox" CODE**  
Loads back where it came from.

**LOAD "fox" SCREEN\$**  
Loads from tape to screen, except for the bottom two lines. It is interesting to watch.

#### MERGE INSTRUCTIONS

**MERGE "fox"**  
Keeps old program and variables, then loads new program and variables from tape. New program lines are inserted, or overwrite old program lines. New variables are added, or replace old variables having the same name

**MERGE** requires free memory to provide a workspace. There is also no prompt to tell you to stop the recorder, other than a change in border pattern. The same is true when **LOADing** large arrays.

Taken from the March 1986 issue of **L.I.S.T.ing**, the newsletter of the **LONG ISLAND SINCLAIR TIMEX GROUP**.

Retyped by G.F. Chambers



## LARKEN DSK400 DISK OPERATING SYSTEM

A review

by G.F. Chambers

Larry Kenny has come out with what in effect is his third generation disk interface system. Possibly one should say his 2nd generation, since it could be said that the first generation had two phases.

Lets review the background:

The first system was based on an EPROM DOS (which was bank-switched into the 63488 area of memory), plus several disk DOS's. The second phase of this first system provided a cartridge DOS which was bank-switched into the ROM area of the computer (when disk functions were required), and eliminated the need for the EPROM- and disk-based DOS's. The cartridge also provided several supplementary features not available on the initial system. This system was confined to the use of two DSDD drives, and formatted disks to a 160K capacity and maximum of 50 files.

::::::::::::::::::::

The new system, the DSK400, subject of this review, consists of a cartridge board very similar to the original, plus a new interface board. The new interface board measures about 6 inches by 2 inches, and mounts horizontally behind the computer. A ribbon cable for the drive plugs into a connector at the right-hand end of the board. At the other end of the board are an NMI button and a 9-pin joystick connector. Possibly the unit could fit into an empty Memotech or Gladstone ZX81 64K RAMpack case. The board is equipped with a gold-plated female connector with a tinned male through-connector, for adding other peripherals. Four of the nine chips on the interface board are socketed. The quality of the board is very high.

The system can handle a variety of drives, up to a maximum of four. It is said to be capable of handling 3", 3½", and 5¼" (not 8") single or double sided drives in single-, double-, or quad density. I have only tried it on a SA455-type 5¼" drive in the DSDD mode. In this mode disks can be formatted to hold just over 400K.

The system uses all the familiar Sinclair commands, including CAT, ERASE, LOAD, SAVE, MERGE, OPEN #, CLOSE #, FORMAT, also GOTO and PRINT. All disk commands are prefaced with PRINTUSR 100: or PRINT #4:

The system is compatible with the 2068 and the Spectrum mode. A Spectrum EPROM can be mounted on the cartridge and switched in with a short BASIC command from the 2068 mode. It has an AUTOSTART mode, by which you can boot a program into memory by holding the ENTER key operated while powering up the computer. Only one program per disk can be handled this way. I usually make this a MENU program to select the program that I want from the disk. This AUTOSTART program can be used to automatically boot the computer into the SPECTRUM mode from a cold start, and produce the menu.

With an appropriate EPROM DOS the cartridge is also suitable for use with several other disk systems, such as the AERCO, RAMEX, OLIGER; improving the performance of these systems significantly. It can also be used with the OS-64 and LROS cartridge chips, by mounting them on the cartridge board.

A program to format disks is supplied on disk, along with a program to facilitate copying disks using two drives. The FORMAT program will format disks as either double or single sided, and to 40 or 80 track density.

Programs can be saved (and loaded) with all the command forms used with tape, as for example:: SAVE "program.B1", SAVE "program.B1" LINE 100, SAVE "prog.C1" CODE start, length, SAVE "program.C1" SCREEN\$, SAVE "prog.A1" DATA (), SAVE "prog.A5" DATA \$().

Programs can be removed from the disk using the ERASE command. Tracks so erased become available for subsequently saved programs.

The NMI (snapshot) button means that you can capture to disk those unbreakable programs on tape. Simply load your program, press the NMI button and the program will be transferred to disk. It captures the complete memory from address 22490 upwards, and uses 9 tracks of a disk. Loading one of these programs from disk takes just under 7 seconds. A disk can hold 8 of these programs, and have 7 tracks spare for menu, etc.

Programs such as Tasword, Timachine, Pro/file, Mtermil are readily modified to run on the DSK400 system. Mscript with Jack Dohony's mods can be similarly adapted.

The joystick port accepts the 9-pin connector standard on joysticks, and works with those programs which are provided with the Kempston joystick option.

The DUMP.B1 and COPY2D.B1 programs supplied on disk with the system use a modified disk DOS which can be used from BASIC programs to control the drive operation. This means that disk utilities can be written in BASIC to perform a variety of tasks, similar to what has been done with the earlier LARKEN systems. Typical of this are three programs which I have modified for the DSK400. They are a RENAME program, which will rename programs on disk; DOCTOR with which one can inspect and repair errors on disk tracks; and INDEXER which maintains a file of programs on a disk collection.

The DSK400 includes a number of Extended Basic commands. These permit the placement onscreen of up to three "windows" of any size, colour, and position; and writing to them in proportionally spaced characters. Also there is a set of 7 graphics patterns which can be called up as desired to fill areas of screen. A CIRCLE command will fill in selected areas of the screen with a selected pattern. INK and PAPER commands will instantly change paper/ink colours. POKE will poke numbers higher than 256 into two addresses automatically.

Conclusions:: A very easy-to-use system which will greatly enhance the use of the TS2068. Highly recommended.

Available from: Larken Electronics, R.R.#1, Nawan, Ontario, Canada K4B 1H9 Price for interface board, cartridge board and drive connector cable: Can \$145. (You will also need to purchase the disk drives and a power supply for them)

# LARKEN and the HUNTER

Mei Richardson

The Hunter board normally configured for the 8-16 K region of memory is required for SILICON MOUNTAINS' WRX16 SRAM HI-RES and is convenient to store many other utilities. The Larken EPROM is mapped at 12-16 K, creating a problem. How to use these devices together and most importantly, put ZX-TERM\*80 on disk?

An arrangement to alternately disable the controller and NVM is one answer and is easily done. The principle is to switch off the Hunter board while reading from or writing to disk, then switching off the controller when disk operations are complete. Appropriate prompts and pauses are added to autorun programs to allow the switching. For instance:

```
1000 PRINT "REMOVE DISK...SWITCH
FOR SRAM"
1010 PAUSE 4E4
1020 RUN
```

The Hunter board documentation shows how to install a disable switch. See figs. 1 & 2. The little switch can be superglued to the foil side of the board near the top.

The method used to isolate the LARKEN board is similar. The MREQ line is cut and bridged with a switch.

Follow the trace from the edge connector, cut it at a convenient place and bridge the gap with a switch. Although MREQ is on the top (component) side of the edge connector, it is traced through and under the board. There are a number of unused traces and feed throughs here and I found it easiest to make the cut on the foil side and use the feedthroughs to the top to solder the switch leads. It is recommended that a pull-up resistor be used on the board side of the cut. There is a nice fat trace, Vcc to pin 14 of the HCT04 chip nearby providing 5V for a pull-up (4.7 to 10K). See figs. 3 & 4.

The switch can be fixed to the board with superglue or use some double sided foam tape to fasten the switch temporarily. Next time I will show how the board can be mounted in a readily found case.

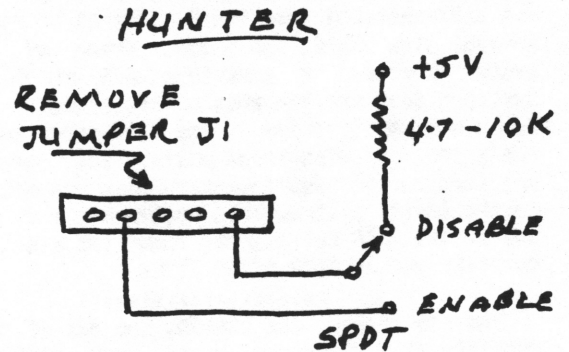


FIG 1

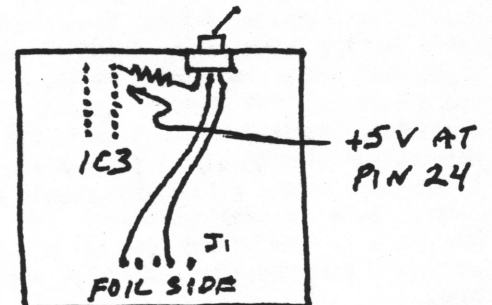


FIG 2

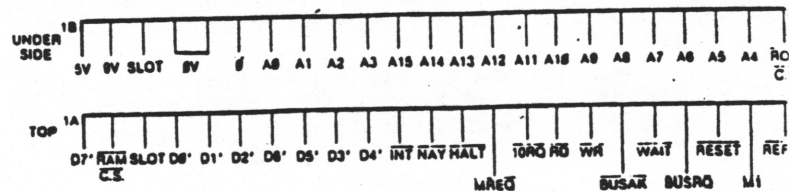


FIG 3

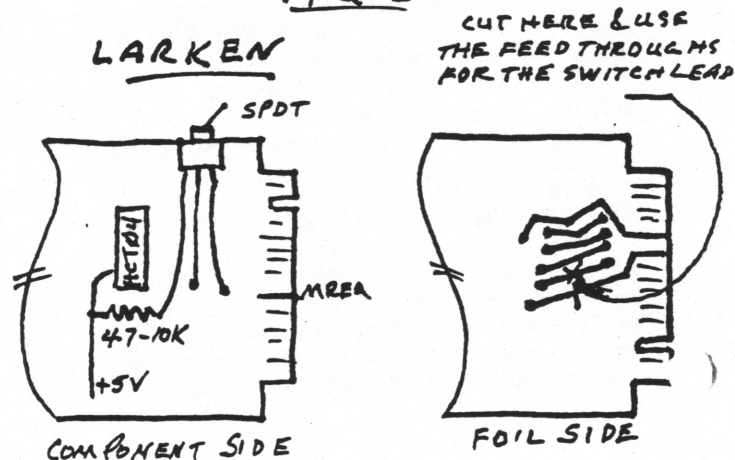


FIG 4



## Coloured Screen\$ Dumps for the TS2068

by Jeff Taylor

Last issue I wrote of a new interface which would mate a TS2068 to a Commodore VIC-1520 colour printer/plotter and of the software that allowed you to draw on the tv screen and then plot your artwork in colour. There are three new software packages which I will be reviewing in this and future issues.

John McMichael's latest offering is called "PIC-PLOT" and it enables you to produce one or two-coloured plots of any screen\$ you have stored on tape.

PIC-PLOT allows the user to choose between a single colour (black, blue, green or red) 1x size screen\$ dump of a 22 row x 32 column screen with a plotted size of 2" x 1 3/8" or a 1 or 2 colour 2x size dump of a 22 row x 32 column screen with a plotted size of 3 3/4" x 2 3/4". A coloured (your choice), self-centring, multilined title or caption can be printed below the screen dump.

Essentially, what happens is this: After you have been prompted to load a screen\$ and your picture is on the screen, you are asked to select either a 1 colour 1x size plot (where each "turned on" screen pixel is represented by a single horizontal movement of the plotter pen) or a 1 or 2 colour 2x size plot (where each isolated "on" pixel or group of "on" pixels are bordered by both vertical and horizontal pen plot lines). Next you are asked to choose your colour(s) and immediately after entering your decision(s) the plotter proceeds to reproduce the screen. Once plotting is complete, you are offered the option of adding a title or caption (40 characters max., multiple lines) beneath the picture.

PIC-PLOT costs \$8.95US and is a "must have" utility for any user of the interface/plotter combination. The ease and friendliness of the software guarantees that you'll be creating lots of interesting, multi-coloured screen\$ dumps.

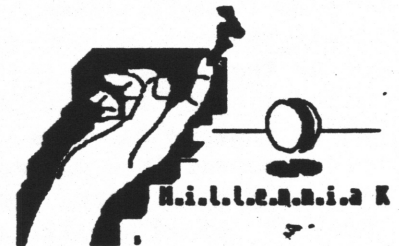
For more information contact:

Mr. John McMichael,  
1710 Palmer Drive,

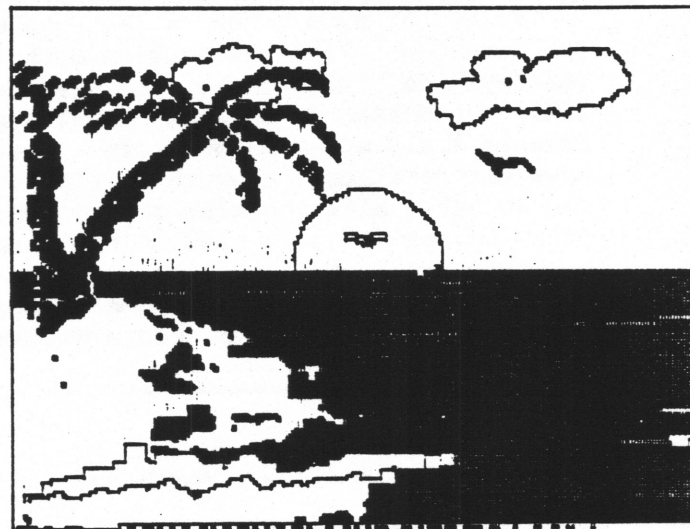
Laramie, Wyoming, USA, 82070

Send a SAE and a MO for postage.

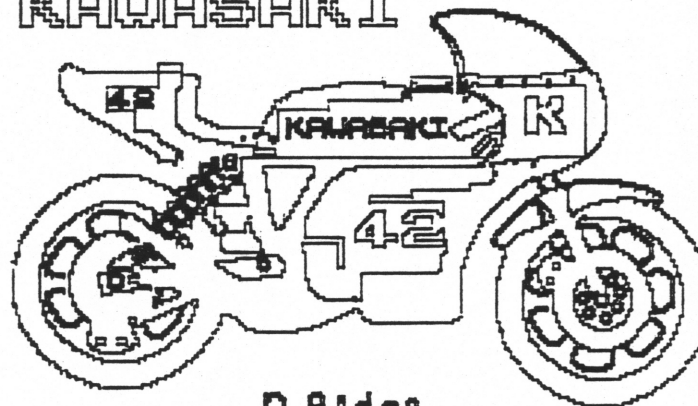
These screen\$ dumps were all produced by a TS2068 with a McMichael interface on a VIC-1520 with PIC-PLOT utility.



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KAWASAKI



D. Ridge

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## A Few Words from the President...

When George sent out that letter about closing the club down I came out to the meeting with the idea that I did not want the club to close, and I was willing to do some LITTLE thing to keep it going, if necessary. So I opened my big mouth, and next thing I knew, George was saying "I don't want to be up here, I want to be down there!". After that I found myself behind the teacher's desk looking down at all the rest of you and George sitting down with you folks. I don't know how I got up there; Did my feet carry me or did two of you big guys come and drag me up to the teacher's desk? At this point, I would like to apologize to George for saying that he bam-booselled me into being president. I am sorry for accusing you of bam-booselling, railroading is a better term. Of course, all you guys did lend your able assistance, too.

Now, as to my qualifications for this highest of all offices; I have never been president, past or vice, secretary, or committee member of anything before, and those who recommended me for such positions were generally laughed to scorn and drummed out of their organizations. So you see, you guys are pretty desperate.

A friend of mine bought a ZX81 and was unable to get to first base with either the computer or the instruction book (this turned him off computers so completely that even to this day he will have nothing to do with them,) so he gave me his ZX81. I had almost as much trouble with it too. Then I joined the club, and because I did my computer meets almost all my needs and serves me well. I think I have gotten almost everything I need from the club now, I could be selfish and say to heck with the club and go on my way, but I appreciate what the club has done for me and I am glad to return some of this aid back to the club. If other members would take the same attitude, perhaps we would never need to worry about the club folding again. So come on guys, lets make this club a going concern.

Your New President - S. Eddie Maybee

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